

Amendments to the Claims

This listing of claims replaces all prior versions, and listing, of claims in the application:

1-8. (Previously Cancelled)

9. (Currently amended) A parser system comprising:

an interface configured to receive a data stream composed of interleaved sections of a plurality of different packets, and to receive section identity information about each of the sections of data defining to which packet it relates; and

a parsing unit configured to process the data stream in a section-by-section manner and to employ the section identity information to identify and extract data; the parsing unit comprising:

a scanning section configured to identify structural features of the packets using the section identity information, the structural features including the location of the start of one or more of layer 2 and layer 3 data in the packets;

a first parser configured to extract data using user-programmable offset information, the user-programmable offset information including an indication of whether data is to be extracted from the layer 2 or layer 3 data, and an indication of the location of the data to be extracted relative to the location of the start of the layer 2 or layer 3 data; and

a second parser configured to extract data from the packets in locations defined by the identified structural features of the packets and predetermined offset information..

10. (Cancelled)

11. (Cancelled)

12. (Currently amended) The parser system according to ~~claim 11~~ claim 9, wherein the scanning section is further configured to identify tagged packets.

13-18. (Cancelled)

19. (Currently amended) A method of parsing a data stream comprising:
receiving a data stream composed of interleaved sections of a plurality of different packets;
receiving section identity information about each of the sections of data defining which packet it relates to; and
processing the data stream in a section-by-section manner, said processing including:
identifying structural features of the packets using the section identity information, the structural features including the location of the start of one or more of layer 2 and layer 3 data in the packets ~~employing the section identity information to identify and extract data~~
extracting, using a first parser, data from the packets based on user-programmable offset information, the user-programmable offset information including an indication of whether data is to be extracted from the layer 2 or layer 3 data, and an indication of the location of the data to be extracted relative to the location of the start of the layer 2 or layer 3 data; and
extracting, using a second parser, data from the packets in locations defined by the identified structural features of the packets and predetermined offset information.

20-25. (Cancelled)

26. (Currently amended) The method of ~~claim 20~~ claim 19 wherein the identifying structural features step includes identifying tagged packets.

27. (Previously Presented) The method of claim 26 wherein the identifying structural features step includes identifying snapped packets.
28. (Currently amended) The ~~method-parser system of claim 24~~ claim 12 wherein the scanning section is further configured to identifying structural features step ~~includes~~ identifying snapped packets.
29. (New) The parser system according to claim 9, wherein the interface is configured to receive a data stream including eight packets, each of which are divided into sections eight bytes in length, the sections of the eight packets being interleaved.
30. (New) The parser system according to claim 29, wherein the scanning section is further configured to calculate a set of variables for each eight bytes received, the set of variables including: a length variable which indicates the number of bytes received so far, an index variable which indicates the largest integer which is no greater than the length variable divided by eight, and an offset variable which indicates the length variable modulus eight.
31. (New) The parser system according to claim 30, wherein the scanning section is configured to identify, based on the set of variables calculated, the start of the layer 3 of the packets and whether the packets include a VLAN or SNAP tag.
32. (New) The parser system according to claim 30, wherein the first parser is configured to extract eight 16-bit local keys using the user-programmable offset information provided in user-programmable registers, and wherein the parser unit is further configured to:
- perform an AND operation on the extracted local keys and eight 16-bit masks;
 - perform an AND operation on the masks and eight 16-bit rules, and
 - compare the results of the AND operations to produce eight 1-bit results.

33. (New) The parser system according to claim 32, wherein the second parser is configured to extract a set of eight bits using the predetermined offset information provided in key selection registers, and wherein the parser unit further comprises a combine unit configured to combine the set of eight bits and the eight 1-bit results to produce a final key.

34. (New) The method according to claim 19, wherein receiving the data stream comprises receiving eight packets, each of which are divided into sections eight bytes in length, the sections of the eight packets being interleaved.

35. (New) The method according to claim 34, wherein identifying structural features comprises calculating a set of variables for each eight bytes received, the set of variables including: a length variable which indicates the number of bytes received so far, an index variable which indicates the largest integer which is no greater than the length variable divided by eight, and an offset variable which indicates the length variable modulus eight.

36. (New) The method according to claim 35, wherein identifying structural features comprises identifying, based on the set of variables calculated, the start of the layer 3 of the packets, and whether the packets include a VLAN or SNAP tag.

37. (New) The method according to claim 34, wherein extracting using a first parser comprises extracting eight 16-bit local keys based on the user-programmable offset information provided in user-programmable registers, the method further comprising:

- performing an AND operation on the extracted local keys and eight 16-bit masks;
- performing an AND operation on the masks and eight 16-bit rules, and
- comparing the results of the AND operations to produce eight 1-bit results.

38. (New) The method according to claim 37, wherein extracting using the second parser comprises extracting a set of eight bits based on the predetermined offset information in key

selection registers, the method further comprising combining the set of eight bits and the eight 1-bit results to produce a final key.